

WHAT IS CLAIMED IS:

1. A method of making a heterogeneous building block array, the method comprising:

5 forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks; and

immobilizing building blocks to the support in the spots by covalent coupling, by an ionic interaction, or by a combination thereof.

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2. A composition comprising:

a support; and

a portion of the support comprising a plurality of building blocks;

building blocks being immobilized on the support by covalent coupling, by an

15 ionic interaction, or by a combination thereof.

3. A composition comprising:

a support; and

a portion of the support comprising a plurality of building blocks;

20 building blocks being immobilized on the support by covalent coupling, by an

ionic interaction, by hydrophobic interaction, or by a combination thereof.

4. A method of making a heterogeneous building block array, the method comprising:

25 forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks; and

immobilizing building blocks to the support in the spots by covalent coupling, by an ionic interaction, hydrophobic interaction, or by a combination thereof.

30 5. A method of making an array comprising reversibly immobilized building blocks, the method comprising:

forming a plurality of spots on a solid support, the spots comprising a plurality of building blocks;

reversibly immobilizing building blocks on the solid support in the spots.

5        6.        A composition comprising:

a support, a functionalized lawn, and a plurality of building blocks;

the functionalized lawn being coupled to the support;

building blocks being reversibly immobilized on the lawn.

10      7.        An article of manufacture comprising:

a support, a functionalized lawn reagent, and a plurality of building blocks;

the functionalized lawn being configured to be coupled to the support;

the plurality of building blocks being configured to be reversibly coupled to the lawn.

15      8.        A method of using an artificial receptor comprising:

contacting a reversibly immobilized heterogeneous molecular array with a test ligand;

the array comprising:

      a support, a functionalized lawn, and a plurality of building blocks;

      the functionalized lawn being coupled to the support;

      a plurality of regions on the support;

      the regions comprising a plurality of building blocks; and

      the plurality of building blocks being reversibly immobilized

      on the lawn;

      shuffling building blocks in one or more regions;

25      detecting binding of a test ligand to one or more regions; and

      selecting one or more of the binding regions as the artificial receptor;

      wherein the building blocks in the array define a first set of building blocks, and the plurality of building blocks in the one or more binding regions defines one or more selected binding combination of building blocks.

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9.        A method of using an artificial receptor comprising:

contacting a first reversibly immobilized heterogeneous molecular array with a test ligand;

the array comprising:

a support, a functionalized lawn, and a plurality of building blocks;

5 the functionalized lawn being coupled to the support;

a plurality of regions on the support;

the regions comprising a plurality of building blocks; and

the plurality of building blocks being reversibly immobilized  
on the lawn;

10 exchanging building blocks onto or off of the support;

detecting binding of a test ligand to one or more regions; and

selecting one or more of the binding regions as the artificial receptor;

wherein the building blocks in the array define a first set of building blocks, and the  
plurality of building blocks in the one or more binding regions defines one or more selected

15 binding combination of building blocks.